

REMARKS

Claims 6-12 and 17-23 are pending in the application. Claims 1-5 and 13-16 were canceled in the amendment filed on March 21, 2005. Claim 8 has been amended to correct a typographical error.

Applicants make these amendments without prejudice to pursuing the original subject matter of this application in a later filed application claiming benefit of the instant application, including without prejudice to any determination of equivalents of the claimed subject matter. Support for these amendments appears throughout the specification and claims as filed. No new matter is introduced by these amendments.

It also is submitted that the above amendments may be properly entered at this time.

As an initial matter, Applicants thank the Examiner for the courtesy of the interview on October 12, 2005. Applicants appreciate the consideration provided by the Examiner.

35 U.S.C. §103 (a) Rejection

Claims 6-12 and 17-23 remain rejected as unpatentable over Krishna et al. (Agricultural Wastes, 1986, 17, pp. 99-117), as evidenced by Newmark et al. (US 6,391,346), Muller (GB 2072657), and Haas et al. (US 6,423,317), in view of Hunter et al. (US 5,114,708), and in view of Johnson et al. (GB 2330076). Applicants disagree and respectfully traverse.

It is alleged that Krishna provides for spent hop preparations, and that it would have been obvious to one of ordinary skill in the art to combine the teachings of Krishna with Newmark, Muller, and Haas et al., and further in view of Hunter and Johnson to arrive at the hop acid composition utilized in the claimed invention.

The rejection is respectfully traversed. The cited references, even in combination, do not teach or suggest the methods of the invention in any manner sufficient to sustain the rejection.

As the principal reference is understood, Krishna discloses spent hop preparations, wherein spent hop composition H₃ was found to reduce methane output. Because methane is an unoxidized carbon source, it is considered lost energy to the farm animal. The spent hop composition H₃ comprises a number of factors, including relatively high concentrations of nervonic, erucic, and tannic acid, as well as lowered concentrations of oleic and linoleic acid (page 104-105), as well as a number of unidentified compounds. Also, it is clearly stated that residual hop acids, such as isohumulones, are believed to interfere with the utilization of energy and protein by ruminant animals (page 100). Further, Krishna states that no attempts were made to determine what factors were responsible for antimethanogenic activity (page 112).

Applicants therefore submit that Krishna does not provide a disclosure that teaches or suggests the Applicants' claims. In fact, Krishna teaches away from the Applicants' claimed invention. Krishna suggests that toxic factors, such as bitter isohumulones (a hops acid), appear to interfere with the utilization of energy and protein by ruminant animals. It is therefore noted that Krishna considers isohumulones to be both "toxic" and to interfere with the utilization of energy, and does not increase energy uptake. Because Krishna admits that no attempt was made to identify the factor responsible for antimethanogenic activity of H₃, Krishna provides no teaching or suggestion of any agent responsible for the reduction of methane. Krishna thus fails to provide sufficient teaching or motivation of Applicants' hop acid compositions used to increase food and energy uptake.

Moreover, it is the Applicants' instant application that first provides examples 4-5 and 7-9, which demonstrate that increases in propionate and decreases in butyrate provide for measurements to determine lost energy in a farm animal. Additionally, examples 7-9 demonstrate that gas production is decreased using hop acid compositions against a control.

Based on the foregoing, Applicants submit that Krishna fails to provide a teaching of Applicants' claimed subject matter (e.g., hops acids for use in increasing fuel and energy uptake). Moreover, Newmark, Muller, Haas, and Johnson relate to "hops extracts" (e.g., the CH₂Cl₂, hot water, supercritical CO₂, extracts resulting from exposure of those solvents to hops), which are distinct and different from "spent hops" ("spent hops" being analogous to "marc" in

wine parlance) described by Krishna. Thus, Newmark, Muller, Haas, and Johnson are at least inappropriately combined with Krishna, or even if combined, fail to provide a suggestion or motivation to modify Krishna to arrive at the Applicants' claimed subject matter. Finally, Hunter relates to block co-polymer compositions and these are of sufficiently different composition from hops acid compounds that Hunter (alone or in combination with Krishna) does not teach or suggest Applicants' claimed subject matter.

Applicants therefore submit that a *prima facie* case of obviousness is not made out by Krishna in view of Newmark, Muller, Haas, Johnson, and Hunter and respectfully request that the rejection be withdrawn.

In view of the above amendment, applicant believes the pending application is in condition for allowance. Should any of the claims not be found to be allowable, the Examiner is requested to telephone Applicants' undersigned representative at the number below. Applicants thank the Examiner in advance for this courtesy.

The Director is hereby authorized to charge or credit any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105, under Order No. 51035-61843.

Dated: October 28, 2005

Respectfully submitted,

By 
Dwight D. Kim, Ph.D.
Registration No.: 57,665
Jeffrey D. Hsi, Ph.D.
Registration No.: 40,024
EDWARDS & ANGELL, LLP
P.O. Box 55874
Boston, Massachusetts 02205
(617) 439-4444
Attorneys/Agents For Applicant